Vol 7, No. 1 Spring 2010

Newsletter

Western Michigan University
College of Arts and Sciences
Department of Physics

A Newsletter for Friends of the
Western Michigan University Department of Physics

WMU Hosts International Atomic Physics Conference

One of the biggest events of last year was the 26th International Conference on Photonic, Electronic, and Atomic Collisions, held on the campus of Western Michigan University (WMU) from July 22 through July 28, 2009. The 470 scientific participants, including 111 students, had many fruitful discussions and exchanges that contributed to the success of the conference. Participants attended from 43 countries, making the conference truly international in scope. The 590 abstracts that were presented formed the heart of the conference and provided ample opportunity for discussion.

In addition, there were five plenary lectures covering the different areas of the conference: Paul Corkum (University of Ottawa) on attosecond physics with atoms and molecules; Serge Haroche (Collage de France) on non-destructive photon counting; Toshiyuki Azuma (Tokyo Metropolitan University) on resonant coherent excitation of highly-charged ions in crystals; Eva Lindroth (Stockholm University) on atomic structure effects; and, Alfred Muller (Justus Liebig University) on resonance phenomena in electron- and photon-ion collisions.

Two speakers gave public lectures: Patricia Dehmer (U.S. Department of Energy) spoke on "Facing Our Energy Challenges in a New Era of Science," and William Phillips (Nobel laureate, National Institute of Standards and Technology) presented a talk on "Time, Einstein, and the Coolest Stuff in the Universe."

The department's atomic physicists, John Tanis (co-chair), Nora Berrah (co-chair), Emanuel Kamber, Tom Gorczyca, and Dragan Nikolic (webmaster) acted as the conference's local committee, and many other faculty, staff, and students assisted in making this a successful conference.

More information is listed on the conference website: https://www.icpeac2009.physics.

INSIDE THIS ISSUE:

News

President Emeritus Diether Haenicke

It was with great sorrow that we mourned the death of past Western Michigan University (WMU) President Diether Haenicke on Feb. 15, 2009, due to complications from a head injury that occurred when he suffered cardiac arrest in December 2008. He was 73. Haenicke served as the University's fifth president from 1985 to 1998.

During this time, WMU experienced significant growth in research, private support and enrollment. The University conducted a successful $62 million capital campaign and several major buildings were constructed, including the Student Recreation Center, University Computing Center, Lee Honors College, Gilmore Theatre Complex and Schneider Hall, home of the Haworth College of Business. Other major facilities were renovated and expanded, including Waldo Library, Read Field House and Waldo Stadium.

Among other major accomplishments during his tenure were increased recognition of WMU as a research institution and the successful application to Phi Beta Kappa, the nation's oldest and most prestigious honor society, to authorize a campus chapter of that organization at WMU. The latter made the University one of fewer than 100 public institutions in the nation so honored. Haenicke championed increased research at WMU, and through his efforts our Physics department has obtained a successful Ph.D. program and an internationally recognized research program.

Meet our newest faculty member, Manuel Bautista

The most recent addition to our department is Manuel Bautista, an astronomer who joined us this past fall. Bautista received his B.S. in Physics from Universidad Simón Bolivar, Caracas, Venezuela in 1990, and his Ph.D. in Astronomy from Ohio State University in 1997. He then held both a faculty research associate position in astronomy at the University of Maryland, and a senior research associate position at NASA/Goddard Space Flight Center until 2000. Beginning that year, Bautista returned to his native Venezuela and was a tenured research associate at the Instituto Venezolano de Investigaciones Científicas until 2007, but due to the unrest in that country, he decided to take an associate researcher position at Virginia Tech (Blacksburg).

Bautista's research area is in the study of astrophysical plasmas and their spectra, including atomic and molecular processes, radiative transfer, and hydrodynamics. These plasmas, in the context of different kinds of astronomical objects, respond to the mechanical, thermal, and radiative energy, and thus by understanding them one can decipher how the universe operates. His research is also in atomic spectra - the ultimate observational signatures. He constructs spectral models for neutral and low ionization species, particularly from the iron-peak elements that are crucial in the study of a great variety of galactic and extragalactic objects. Bautista's research expertise thus complements the work of both WMU astronomer Kirk Korista and WMU atomic theorist Tom Gorczyca.

Bautista came to WMU already with financial support from NASA and the Space Telescope Science Institute for a systematic study of the spectra of low ionization iron-peak species to develop extensive and accurate spectral models.

Mitchell tapped for Ombuds Office

Kathy L. Mitchell has been selected to head the WMU Ombuds Office. Kathy began her WMU career in 1990 as a departmental secretary in the Department of Physics. Since then, she has served as an administrative assistant in science studies and an academic advisor in both environmental studies and education before becoming WMU's director of field placements in the College of Education from 2004-2009.

A university ombuds' role is to provide confidential advice and nonpartisan assistance in solving problems and resolving disputes.

Faculty News

- **Charles Henderson** has been awarded a Fulbright Scholar grant to conduct research and work with graduate students at the University of Jyväskylä in Jyväskylä, Finland from January to May, 2010. His primary work will be with the University of Jyväskylä Institute for Educational Research where he plans to expand his current research on instructional reform in higher education. Dr. Henderson is one of approximately 1,100 U.S. faculty and professionals who will travel abroad through the Fulbright U.S. Scholar Program during the 2009-2010 academic year. The Fulbright Program is sponsored by the U.S. Department of State, Bureau of Educational and Cultural Affairs.

- **Michi Soga** (professor emeritus) has received an honorary doctoral degree from Josai University, Tokyo, Japan.

- **Arthur McGurn** and **John Tanis** have been recognized as American Physical Society (APS) Outstanding Referees. The Outstanding Referee program was instituted in 2008 to recognize scientists who have been exceptionally helpful in assessing manuscripts for publication in the APS journals. The basis for choosing the honorees was the quality, number, and timeliness of their reports, without regard for membership in the APS, country of origin, or field of research. The honorees so far come from over 30 different countries, with large contingents from the U.S., Germany, Canada, Spain, UK, and France.

- **Arthur McGurn** has been named a WMU Distinguished Scholar. On March 11, 2009, McGurn accepted his award before giving a public lecture, titled "The Wave Nature of Light: Applications to Scattering, Nano Photonics, and Quantum Computing." McGurn gave a qualitative, non-mathematical discussion of some of the unusual properties of light and their applications. He explained the atmospheric phenomenon known as the optical glory, along with related phenomena of the scattering of light from rough metal surfaces, the scattering at opposition of light from the atmosphere of Mars, and the night time reflection of light from the eye. McGurn then went on to relate some of these phenomena to his latest research interests, including the new technology of photonic crystals, and its potential in nano-photonic applications. Zero-threshold lasers based on photonic crystal technology were explained, and a qualitative understanding of the phenomenon of quantum entanglement and the Einstein-Rosen-Podolsky Paradox was given along with their application to quantum computation. The entanglement of trapped atoms as a quantum computer was also discussed.

- **Nora Berrah** has received a Department of Energy (DOE) grant for her research using the Linac Coherent Light Source (LCLS) at the SLAC National Accelerator Laboratory (SLAC). This award, titled "Ultrafast Science using the LCLS," is for $3 million dollars for the next two years. The LCLS is the world's first x-ray free electron laser and just opened its doors to users on Oct. 1, 2009. Berrah was also granted five days of beamtime to investigate the interaction of ultrashort (femtosecond) x-ray laser pulses with molecules.

- **Michael Famiano** was elected to the Users' Executive Committee of the National Superconducting Cyclotron Laboratory (NSCL) at Michigan State University. His research was also featured on the cover of MSU Today and as an interview in Symmetry magazine.

Visiting Professor Nasser Hamdan

Nasser Hamdan has joined **Clement Burn's** research group as a visiting research professor. Professor Hamdan graduated from Middle East Technical University, Ankara, Turkey in 1993 and worked as assistant and associate professor at King Fahd University of Petroleum and Minerals in Saudi Arabia from 1993 to 2000.

In 2000, he joined the Advanced Light Source at Lawrence Berkeley National Laboratory as a beam line scientist. Then, in 2002, he worked as associate professor, and later chair, at the physics department, American University of Sharjah (AUS), United Arab Emirates.

Staff Highlights

- **Dragan Nikolic** (postdoctoral research associate, 2005-2009) has recently taken a position as an Assistant Research Officer at the National Institute for Nanotechnology in Edmonton, Alberta. Funded by Xerox Research Centre of Canada, Dragan works on theoretical modeling of self-assembly of polyester nanoarchitectures in aqueous environments and simulations of their conformational stability. The current multi-scale modeling methodology involves molecular theory of solvation coupled with molecular dynamics simulation, computations of Flory-Huggins interaction parameters using Monte-Carlo techniques, and prediction of micelles formation and growth through dissipative particle dynamics.

- **Matthias Hoener** is a postdoc in **Nora Berrah's** group and is also a Feodor Lynen fellow from the Alexander von Humboldt foundation. His Ph.D. was carried out in his native country, Germany. It centered on studies of clusters using synchrotron radiation in Hamburg and Berlin, Germany, as well as using the VUV free electron laser called FLASH in Hamburg. He is presently carrying out research using the Advanced Light Source at the Lawrence Berkeley National Laboratory and also using the x-ray free electron laser (FEL) at the SLAC National Accelerator Laboratory.

- **Dinesh Shetty** is a new postdoctoral research associate working in **Alan Wuosmaa's** research group. Shetty received his B.S. in physics in 1991, his M.S. in solid- state physics in 1993, and his Ph.D. in nuclear physics in 1999 from the University of Mumbai. Prior to coming to WMU, he worked as a research fellow at Laboratori Nazionali di Legnaro, Italy and at the Cyclotron Institute at Texas A&M University. Shetty is researching on the structure of light exotic nuclei important for reactions of astrophysical interests. He is also working on the nuclear equation of state of isospin asymmetric nuclear matter relevant to the structure of neutron stars.

- **Li Fang** joined the group of **Nora Berrah** in August 2009. She obtained her Ph.D. in Physics from the University of Connecticut, Storrs, CT in August 2009. Her research focused on Atomic and Molecular Optical Physics in ultrafast laser fields. The title of her dissertation was "Strong-field Induced Vibrational Coherence in Iodine Molecules." She obtained her

B.S. in Applied Physics from Beijing Polytechnic University in Beijing, China. Her thesis title was "Control of Multi-Color Laser Display System." She joined Berrah's group to use the Linac Coherent Light Source at the SLAC National Accelerator Laboratory to study the interaction of matter with ultrafast and ultraintense radiation. She is presently working on the interaction of molecules with intense radiation from the X-ray femtosecond free electron laser (FEL) that opened its doors to scientists during the fall of 2009.

- **Brendan F. Murphy** joined the group of **Nora Berrah** in November 2009. He obtained his Ph.D. from the Texas Center for High Intensity Laser Science at the University of Texas at Austin. The title of his Ph.D. in Physics is "Dynamics of Noble Gas Clusters in Intense XUV Light." His advisors were Profs. Todd Ditmire and John Keto. He did his B.A. at Reed College, Portland, Oregon and his thesis was "Zeeman Quantum Beats in Fluorescence of Atomic Rb." His present research interests are in dynamics of matter in electromagnetic fields and ultrafast photoelectron spectroscopy. He has joined Berrah's WMU group to use the Linac Coherent Light Source at the SLAC National Accelerator Laboratory to study the interaction of clusters with ultrafast and ultraintense radiation. He is also in charge of building an x-ray split and delay to carry out an x-ray pump-x-ray probe experiment to understand the underlying mechanisms in electronic dynamics.

- **Vanessa Fivet** is a new postdoctoral research associate working in **Manuel Bautista's** astrophysics research group. Vanessa received her B.S. in 2005 and her Ph.D. in 2009 as a FRIA research fellow working in the Astrophysics and Spectroscopy group at the University of Mons-Hainaut, Belgium. Her thesis work was on atomic structures of lowly-ionized heavy elements and their astrophysical applications. Vanessa's research at WMU will be in computing transition probabilities for allowed and forbidden transitions, collision strengths, photoionization cross sections, and recombination rate coefficients for modeling neutral, singly, and doubly ionized iron-peak species astrophysics.

Student Awards & Degrees

David Carley Memorial Graduate Fellowship Award

Spring 2008
- Shadi Bedoor
- Khalil Hamam

Spring 2009
- Amila Dissanayake
- Khalil Hamam

Haym Kruglak Graduate Student Teaching Excellence Award

Spring 2008
- Subramanian Ganapathy
- Buddhika Senarath Dassanayake

Haym Kruglak Undergraduate Student Teaching Excellence Award

Spring 2008
- Rachael M. Kaluzny

Jacob P. DeWitt Outstanding Teaching Award

Spring 2009
- Ravin Kodikara
- Buddhika Senarath Dassanayake

Leo Parpart Scholarship

Spring 2008
- Susanta Das
- Ileana Dumitriu
- Muhammet Fatih Hasoglu
- Huaizhen Zhang

Spring 2009
- Shadi Bedoor
- Lihua Wang

Nathan Nichols Scholarship

Fall 2007
- Kurtis Wickey

Spring 2008
- Kurtis Wickey

Fall 2008
- Jennifer Friday

Spring 2009
- Gregory Chernoby
- Kevan Hess
- Jennifer Friday
- Marcus Murry
- Christine Novak

Fall 2009
- Nathan Lowe
- Davina Wyman

Office of Vice President for Research Undergraduate Research Award 2009

- John Novak (third time)

Paul Rood Scholarship

Fall 2007
- William Johnson
- Jesse Snyder
- Jack Winkelbauer

Spring 2008
- Paul Malsom
- John Novak
- Jesse Snyder
- Jack Winkelbauer

Fall 2008
- John Novak
- Alexander Robinson
- Jack Winkelbauer

Spring 2009
- John Novak
- Emma Parker
- Jennifer Thompson
- Paul Thompson
- Jack Winkelbauer

Fall 2009
- John Novak
- Jennifer Thompson

Phi Kappa Phi Induction 2009

- Shahin Abdel Naby
- Buddhi Man Rai

Presidential Scholar

Spring 2008
- Jesse Snyder

Spring 2009
- Jack Winkelbauer

Thomas Dickinson Undergraduate Book Scholarship Award

Spring 2009
- George Tecos

Wilcox Memorial Award

Spring 2008
- Kurtis Wickey

Spring 2009
- Jack Winkelbauer

Degrees Awarded

Bachelor of Arts

April 2008
- Rachael Kaluzny (B.A., Sec. Ed)
- Patrick Malsom
- Kyle Ondersma (Sec. Ed)
- Elizabeth Pollok (Sec. Ed)
- Jesse Snyder
- Kurtis Wickey
- Matthew Wilen (Sec. Ed)

June 2008
- Scott Demond (Sec. Ed)
- Mike McCauley (Sec. Ed)

December 2008
- Jeffrey Nass (Sec. Ed)
- Alexander Robinson (Sec. Ed)

April 2009
- George Tecos
- Jack Winkelbauer
- Marcus Murry (Sec. Ed)
- Christine Novak (Sec. Ed)

December 2009
- Jennifer Friday (Sec. Ed)

Master of Arts

June 2007
- Robert Cipri

December 2007
- Shujun Li
- Yingfa Zhang

June 2008
- Subramanian Ganapathy

December 2008
- Daniel Adams

April 2009
- David Cassidy
- Andrew Moore

June 2009
- Melike Winkworth

August 2009
- Nicholas Goodman
- Anjali Vyas

December 2009
- Michael Durren

Ph.D.

June 2007
- Chaminda Nalaka Kodituwakku

December 2007
- Talal Ghannam
- Xue Wang

December 2008
- Muhammet Fatih Hasoglu

April 2009
- Susanta Das

June 2009
- Lihua Wang

August 2009
- Huaizhen Zhang

Two Named Alumni Achievement Award Recipients

James Slusser (B.S. '77, M.A. '80)

James Slusser received the Alumni Achievement award during homecoming ceremonies in 2007. His master's thesis at WMU, "Target Thickness Effects of Chlorine Ions at 49.5 MeV on Germanium," was performed on the tandem Van de Graaff accelerator in Rood Hall.

After leaving Western, Slusser first took the position of physics lab director at Loyola University of Chicago, and then was a design engineer at Atlas Electric Devices in Chicago. He then received his Ph.D. in Atmospheric Science at the University of Alaska, Fairbanks, in 1994, for work on "Nitrogen Oxides in the Arctic Stratosphere: Implications for Ozone Abundances."

His work in physics continued with research associate positions at the Research Associate National Institute of Water and Atmospheric Research, Lauder, New Zealand and at the Research Associate Centre for Atmospheric Science, University of Cambridge, England.

Since 1996, Slusser has been employed at the Natural Resource Ecology Laboratory in Fort Collins, Colo., and is now the Director and Senior Research Scientist of the UVB Radiation Monitoring and Research Program at Colorado State University, specializing in atmospheric research using ultra-violet light. This turns out to be a crucial tool for monitoring changes in stratospheric ozone abundances and other global-scale changes induced by modern industrial society, and Slusser has published extensively in this important area of research.

William S. Hough (B.A. '48)

William Hough was awarded the College of Arts and Sciences Alumni Achievement award in 2008. He served in the U.S. Navy during World War II, and was assigned to the V-12 Officer Training Program, an intensive program of study at what was then Western Michigan College of Education.

Hough was deeply interested in science, and still has strong memories of that time and of professors Marburger and Rood of the Department of Physics. In 1946, he retired from the Navy and returned to Western to finish his college degree. After graduation, he began work in Washington, D.C. as a civilian scientist with the Department of Commerce, which was the branch of government then charged with developing guided-missile technology.

When that effort was consolidated with the Navy, he followed his research group to southern California. It was there that he heard rumors of a major upcoming international scientific effort, which would become the International Geophysical Year (IGY) of 1957.

Through intense library research, he positioned himself for selection into the Antarctic expedition team. Hough thus became a member of the first group ever to winter at the South Pole, at what is now called the Amundsen-Scott Station. The 18-man crew landed on the continent in October 1956, and constructed most of the original base, which is now long buried under snow and ice. During his stay at the South Pole, Hough took on several tasks in addition to studying the ionosphere, including precision geomagnetic measurements and seismic observations.

After the IGY, he transferred to a civil defense post in Boulder, Colo., while continuing his studies of the atmosphere with the federal agency that eventually became the NOAA. In 1969, he left his government job to become a high school science teacher in his home state of Massachusetts.

For 15 years he accepted somewhat less than his full earning potential to do a job he really loved, then took a job in radiation safety and health physics at a naval shipyard in California. He did pioneering work in gamma spectroscopic measuring techniques, before retiring in 1996. He returned to Kalamazoo a few years ago to pursue hobbies in computers, analyzing the stock market, and pipe organs.

Alumni News

- **John Thayer (B.S. '57)** has written to us inquiring about the newsletter, and mentions:"As a really old graduate, I still look forward to current department information. I also have enjoyed reading about people I knew at one time. I have a lot of fond memories of fellow students and faculty. Our highly respected Department Chair was Paul Rood. I have a lot of stories about Dr. Rood, other faculty and other physics students of that era." Perhaps we can hear some of these stories from John or others out there for future newsletters!

- **Danielle Bortolotti (B.S. '01)** writes in to tell us that he finished his Ph.D. work in theoretical atomic physics at the University of Colorado, Boulder in 2007. He then received a second Ph.D. from the University of Florence (LENS) in 2008. Danielle now works in London - the European equivalent of Wall Street - for a Hedge Fund researching quantitative strategies for equity investments. In Danielle's words, "Then with impeccable timing I joined the world of finance, just as the ship was sinking, and the bonus culture was (apparently) ending. I had to choose between Lehman Brothers, Bear Stearns, and BNP Paribas. Luckily I picked the third, as the other two no longer exist. Then I quit that for the Hedge Fund world which is actually much more entertaining. Family is well, and they live in Oxford (a much better place for children). A side effect of turning to the dark side is that one disappears from google, as most of your work becomes someone else's intellectual property."

- **Rod Price (M.A. '01)** is a physics instructor at Kellogg Community College, Battle Creek, Mich. He was awarded tenure in 2008, and was elected President of KCC's Faculty Union. He lives in Hastings, Mich. with his wife and two daughters.

- **Phil Ugorowski (Ph.D. '02)** has updated us recently. After leaving WMU, Phil was a postdoctoral research associate in experimental nuclear physics at Youngstown State University, OH from 2003-2005. He next took a physics instructor position at Glen Oaks Community College in Centreville, MI. Phil is now a research assistant professor at Kansas State University working in the Semiconductor Materials and Radiological Technologies Laboratory on solid-state neutron and gamma-ray detectors.

- **Ximao Feng (Ph.D. '05)** has been a research associate at Kansas State University since 2006. He has been working on an attosecond streak camera in Dr. Zenghu Chang's group. This workstation can be used to generate single attosecond (10-18 second) XUV laser pulses. These attosecond pulses are necessary to study the electron dynamics on a time scale, since the electrons move inside the atoms on an attosecond scale. Like a common camera, if one wants to take a clear picture of something that is moving fast, the shutter of the camera has to close quickly. This attosecond streak camera is the first one in the U.S. and the third in the world. Ximao has decided to continue working in the Chemistry Department of KSU, where he will do research on photosynthesis using lasers. This research is an interdisciplinary area among physics, chemistry and biology.

- **David Hoogerheide (B.S. '04)** is finishing up his Ph.D. this year in experimental condensed matter physics at Harvard University. His thesis work "Stochastic Processes in Solid State Nanopores," with Prof. Gerald Gabrielse, enables a "good" test of QED by measuring the g-factor of the electron and the positron to 12 decimal places!

  David got married last summer, and his wife Shannon is also a graduate student at Harvard and is finishing her thesis work in experimental atomic physics. David had visited recently to give a department colloquium "Probing Surface Charge Fluctuations with Solid-State Nanopores" in February of 2009. David, by the way, is one of only two WMU students to receive a prestigious Barry M. Goldwater Scholarship in 2003. The other recipient, coincidentally, also is a physics alumnus; Marc Humphrey (B.S. '97) received the award in 1996.

- **Violetta Kovacev-Nikolic (B.S. '07)** received her M.S. in mathematics from WMU this year. She is now a Ph.D. student in Applied Mathematics at the University of Alberta, Edmonton.

- **Fatih Hasoglu (Ph.D. '08)** has been hired as a postdoctoral research associate at Georgia State University in Atlanta, Ga.. He will be involved in atomic photoionization studies in the theoretical atomic physics group of Steve Manson.

- **Huaizhen Zhang (Ph.D. '09)** is now employed at Marktech Optoelectronics in Latham, New York. As an engineer, she works on LED lighting and assembly, and performs research on semiconductor materials.

- **Lihua Wang (Ph.D. '09)** is working as a postdoctoral research associate at Riken, a computational condensed matter physics laboratory in Wakoshi City, near Tokyo, Japan. He is developing algorithms for 2D strongly correlated many-body systems, on square or triangular lattices, for Fermionic, Bosonic, and spin systems.

Van de Graaff Accelerator Laboratory Update

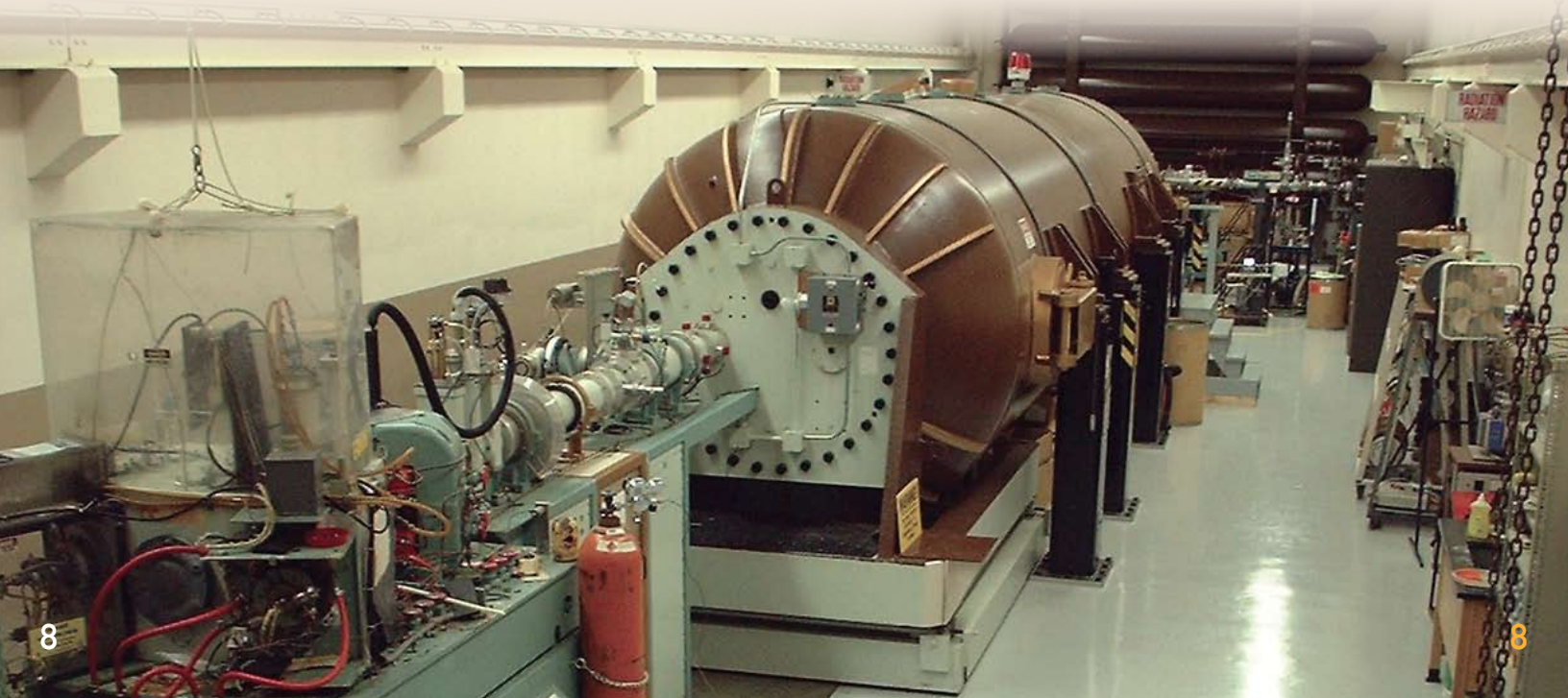
The most important change in the year 2006 at the accelerator laboratory was the retirement of Dr. Steve Ferguson, who served as accelerator physicist for more than 31 years. The Physics Department took advantage of this personnel change to persuade the university to change the accelerator physicist position from professional and administrative staff to Faculty position. Dr. Asghar N. Kayani, research scientist from Montana State University was hired as tenure track faculty member with the provision that he head the accelerator lab and establish a research program. He is a condensed matter/surface science physicist with expertise in the science of advanced materials, and he is a specialist in ion beam analysis of materials. His current research projects are related to the development of solid oxide fuel cells (SOFCs), hydrogen storage materials and carbon thin films.

Dr. Asghar N. Kayani

Kayani's research group consists of five graduate and two undergraduate students. His research group extensively uses the accelerator lab for research experiments. In addition to its uses as a research facility, Kayani uses the accelerator as an educational training tool as well. Specifically, nuclear collision experiments (e.g., Rutherford scattering, nuclear reactions, PIXE) have been incorporated into the department's undergraduate modern physics laboratory that is generally taken by sophomore-level students, and into the advanced laboratory course taken by upper-level undergraduate physics majors and by graduate students.

Kayani uses the WMU accelerator to serve students from other institutions as well. Each spring approximately 70 physics students from the Kalamazoo Area Mathematics and Science Center (KAMSC) visit Western to conduct the Rutherford backscattering experiment as part of their physics curriculum. Similarly, students from Kalamazoo College, Albion College, and Andrews University visit WMU for the same purpose. Making the laboratory available to students from these other institutions helps to enhance significantly the scope and quality of their physics curricula, giving these students an experience that would not otherwise be available to them.

WMU's tandem Van de Graaff accelerator is housed in the basement of Rood Hall.



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Van de Graaff Accelerator

MichBio, the biosciences industry trade association and the official Michigan affiliate of the Biotechnology Industry Organization, along with its partner, Western Michigan University, held its 5th Annual Career Day in November, on the university's campus. More than 100 high school students and their science teachers participated in tours and hands-on demonstrations during the event to raise awareness of educational and career opportunities in the biosciences.

The Van de Graaff Accelerator Lab with its operating particle accelerator (above), along with beam lines, target areas, and detectors (below) is used to do research with sub-atomic particles. During the MichBio visit, students learned from Dr. Paul Pancella and Dr. Asghar Kayani (pictured) how electrostatic forces are used to accelerate charged particles, how electromagnets are used to focus and direct beams of those particles, and why scientists need to use fast particle beams to study the inner workings of the atom.

WMU's tandem Van de Graaff target room in the basement of Rood Hall.

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The Department of Physics Roster

Faculty

Manuel Bautista
Nora Berrah
Clement Burns
Sung Chung
Michael Famiano
Thomas Gorczyca
Dean Halderson
Charles Henderson
Emanuel Kamber
Asghar Kayani (Accelerator Director)
Kirk Korista
Arthur McGurn
Paul Pancella (Chair)
Lisa Paulius (Assistant Chair)
Alvin Rosenthal
David Schuster
John Tanis
Alan Wuosmaa

Emeriti

Eugene Bernstein
Gerald Hardie
Dean Kaul
Robert Poel
Robert Shamu
Michitoshi Soga

Staff

Kerry Cochran
Benjamin Gaudio
Allan Kern
Lori Krum
Bob Scherzer
Rick Welch

Post-doctoral Research Associates

René Bilodeau
Li Fang
Vanessa Fivet
Matthias Hoener
Brendan Murphy
Dinesh Shetty

Graduate Students

Abdel Naby, Shahin (Egypt)
Adams, Betty (Michigan)
Al-Amar, Mohammad (Jordan)
Al-Faify, Salem (Saudi Arabia)
Alshrari, Amal (Saudi Arabia)
Ayyad, Asma (Israel)
Baran, Jamie (Michigan)
Bedoor, Shadi (Jordan)
Chakraborti, Priyanka (India)
De Silva, Samanthi (Sri Lanka)
Dissanayake, Amila (Sri Lanka)
Dumitriu, Ileana (Romania)
Dumitriu, Laurentiu (Romania)
Elhoussieny, Ehab (Egypt)
Elkafrawy, Tamer (Egypt)
Ganapathy, Subramanian (India)
Gao, Xuan (China)
Garratt, Elias (Michigan)
Giacherio, Brenna (Ohio)
Grineviciute, Janina (Lithuania)
Hamam, Khalil (Jordan)
Keerthisinghe, Darshika (Sri Lanka)
Kodikara, Ravin (Sri Lanka)
Lagha, Rahmah (Saudi Arabia)
Li, Chengyang (China)
Lighthall, Jonathan (Michigan)
Mamudi, William (Indonesia)
Marley, Scott (Michigan)
McCowen, Robert (Michigan)
Nandasiri, Manjula (Sri Lanka)
Rai, Buddhi (Nepal)
Senarath Dassanayake, Buddhika (Sri Lanka)
Stefanick, Trevor (Michigan)
Strong, Benjamin (Michigan)
Taibu, Rex (Malawi)
Tecos, George (Michigan)

Alumni Information Update

WMU ALUMNI ASSOCIATION

Please use this form to update our mailing list, and/or to let us know what you have been doing, and what you would like to see in future newsletters. Fill out any portion of the form below and return to: Newsletter Editor, Department of Physics, 1903 West Michigan Ave., Kalamazoo, MI 49008-5252

Name _____

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City _____ State _____ Zip _____

Home phone _____ Email _____

Employer _____ Job title _____

Work address _____

City _____ State _____ Zip _____

If alumni, degree and year: _____

Tell us more about yourself, and/or what you would like to see in future newsletters:

_____

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Check us out on the web at: www.wmich.edu/physics

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Yes, I want to support the WMU Department of Physics!

In a time when state funding is increasingly restricted, the support we receive from friends and alumni is vitally important. Such funds are used to take advantage of new or unbudgeted opportunities in order to enhance the teaching or the research of the department, or to assist students in achieving their educational and professional goals. *Thank you for considering a gift to the WMU Department of Physics.*

The WMU Foundation processes all gifts that come to the University and forwards 100 percent to the department. Michigan residents: Remember that 50 percent of your gift to a Michigan University is returned to you as a tax credit on your state income tax (up to $200 for a single filer; $400 for joint filers).

I support the WMU Department of Physics with the following gift:

__$1,000 __$500 __$250 __$100 __$50 __$25 $___Other

____I would like to become a special donor to the WMU Department of Physics with a gift of $_____

My gift is to be paid via:

_____ Check (payable to WMU Foundation: Physics)

_____ Credit card (check one)

____Mastercard ____Visa

Account #: _____

Expiration Date: _____

Signature (required): _____

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